

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Art Unit: 2894

Teruo Amoh

Application No: 10/599,036

Examiner: K. E. Peterson

Confirmation No: 3301

Filed: October 1, 2004

Atty. Docket No: 40616-286345

For:

Customer No:

SEMICONDUCTOR LIGHT EMITTING  
ELEMENT MOUNTING MEMBER, AND  
SEMICONDUCTOR LIGHT EMITTING  
DEVICE EMPLOYING IT

**26694**  
PATENT TRADEMARK OFFICE

**SECOND ADDENDA TO APPEAL BRIEF**

***MS Appeal Brief - Patents***

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Dear Sir or Madam:

In response to the Notification of Non-Compliant Appeal Brief dated April 7, 2010, Applicant submits this Second Addenda in accordance with 37 C.F.R. § 41.37. The Appeal Brief was filed on February 11, 2010 and a first Appeal Brief Addenda was previously submitted on March 19, 2010. Applicant submits this Addenda as suggested by the Notification and MPEP 1205.03 instead of resubmitting a new Appeal Brief.

**Updated Summary of Claimed Subject Matter – 37 C.F.R. § 41.37(c)(1)(v) begins**  
on page 2 of this paper; and  
**Conclusion** begins on page 4 of this paper.

**UPDATED SUMMARY OF CLAIMED SUBJECT MATTER – 37 C.F.R. § 41.37(c)(1)(v)**

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

The present invention is a semiconductor light-emitting element mounting member having enhanced reflectivity and light-emission efficiency (*See, e.g.*, claim 1—the sole independent claim—and Abstract). The mounting member includes (i) a substrate, (ii) an adhesion layer having a thickness of 0.01 to 1.00  $\mu\text{m}$ , (iii) a barrier layer having a thickness of 0.01 to 1.50  $\mu\text{m}$  on the adhesion layer, and (iv) a metal film on the barrier layer (*See, e.g.*, Specification<sup>1</sup>, page 4, lines 5-15 and page 18, lines 16-18). The metal film is formed from silver (Ag), aluminum (Al), or an alloy containing both of these metals, and has a thickness of 0.5 to 3  $\mu\text{m}$  (*See, e.g.*, Specification, page 4, lines 5-13 and 21 and page 7, lines 4-6). The metal film may function as an electrode layer for mounting a semiconductor light-emitting element (*See, e.g.*, Specification, page 4, lines 5-13). The metal film may also function as a reflective layer for reflecting light from the light-emitting element (*See, e.g.*, Specification, page 4, lines 5-13).

The inventors have found that enhanced reflectivity can be achieved by controlling two parameters in the metal layer which reflects the light. Specifically, the metal layer in the present invention (i) has a center-line average roughness Ra of no more than 0.1 microns, and (ii) contains crystals grains of silver, aluminum or an alloy thereof along a surface plane of the metal film, where the grains have a particle diameter of no more than 0.5 microns (*See, e.g.*, Specification, page 5, lines 21 through page 6, line 5 and page 15, lines 5-12). This is shown by the data in Tables 1 and 2 of the present application (*See, e.g.*, Specification, page 35 through page 36). For instance, when

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<sup>1</sup> All cites to the specification are to the Clean Copy of the Substitute Specification filed on September 18, 2006.

these requirements for the metal film are not met, the reflectivity of the metal film drops significantly below 75% (*See, e.g.*, the results for the first, second, and third comparative examples in Table 1 of the Specification, pages 35 and 36).

Dependent claim 3 specifies that the metal film is formed as an alloy of at least one of silver (Ag) and aluminum (Al), and another metal, where the proportional content of the other metal is 0.001 - 10 percent by weight (*See, e.g.*, Specification, page 4, lines 16-18). Claim 4 depends from claim 3 and specifies that the other metal is at least one type of metal selected from Cu, Mg, Si, Mn, Ti, and Cr (*See, e.g.*, Specification, page 4, lines 19-20).

CONCLUSION

Applicant believes that a full and complete reply has been made to the Notification of Non-Compliant Appeal Brief. Applicant respectfully submits that the Appeal Brief submitted on February 11, 2010 with the Addenda herewith is in compliance with 37 C.F.R. § 41.37. In summary, Appellant respectfully requests reversal of the rejections of claims 1, 3, 4, and 6-13 under 35 U.S.C. § 103(a). If the Patent Office believes, for any reason, that personal communication will expedite prosecution of this application, the Office is hereby invited to telephone the undersigned at the number provided.

Applicant submits that no additional fees are due at this time, but any necessary additional fees are hereby authorized to be charged, and any overpayments credited to, our Deposit Account No. 22-0261, referencing our docket no. 40616-286345.

Dated: May 7, 2010

Respectfully submitted,

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